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The Health and Well-Being of Transgender High School Students: Results From the New Zealand Adolescent Health Survey (Youth'12)

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A B S T R A C T

Purpose: To report the prevalence of students according to four gender groups (i.e., those who reported being non-transgender, transgender, or not sure about their gender, and those who did not understand the transgender question), and to describe their health and well-being.
Methods: Logistic regressions were used to examine the associations between gender groups and selected outcomes in a nationally representative high school health and well-being survey, undertaken in 2012.
Results: Of the students (n = 8,166), 94.7% reported being non-transgender, 1.2% reported being transgender, 2.5% reported being not sure about their gender, and 1.7% did not understand the question. Students who reported being transgender or not sure about their gender or did not understand the question had compromised health and well-being relative to their non-transgender peers; in particular, for transgender students perceiving that a parent cared about them (odds ratio [OR], .3; 95% confidence interval [CI], .2–.4), depressive symptoms (OR, 5.7; 95% CI, 3.6–9.2), suicide attempts (OR, 5.0; 95% CI, 2.9–8.8), and school bullying (OR, 4.5; 95% CI, 2.4–8.2).
Conclusions: This is the first nationally representative survey to report the health and well-being of students who report being transgender. We found that transgender students and those reporting not being sure are a numerically small but important group. Transgender students are diverse and are represented across demographic variables, including their sexual attractions. Transgender youth face considerable health and well-being disparities. It is important to address the challenging environments these students face and to increase access to responsive services for transgender youth.
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IMPLICATIONS AND CONTRIBUTION

This nationally representative survey is the first to report on the overall health and well-being of transgender young people. It is important that population-based surveys recognize that not all people assume the gender of their natal sex. Schools, health services, and communities must consider that transgender youth represent an important population that has specific needs.

The word "transgender" is an umbrella term used to refer to people whose gender identity and natal sex differ [1]. Scientists studying the gender expression and sex diversity of various species have long challenged the notion of a conventional sex or gender binary [2–5] in which all animals can be only entirely

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male or entirely female. In humans, there has also been a gradual acceptance of gender diversity in many societies around the world [6]. However, most transgender youth "remain invisible" [7] (p. 139) in Western cultures and they must work strategically to appear indistinguishable from their non-transgender peers [7] to avoid abuse [7]. People are expected to assume the gender typically associated with their assigned sex category, and to adopt the gender roles and expectations associated with this [8]. Those who challenge these expectations experience "antagonistic, unwelcoming, and unsafe" [9] (p. 472) environments.

It is difficult to determine the proportion of adolescents from the overall population who are transgender, because definitions and the way in which samples are estimated vary considerably. To date, research on prevalence rates have tended to focus on people, typically in the adult population, who present for gender transition–related care (e.g., for sex reassignment surgery or for hormone therapy) at specialist gender clinics [10], where rates have been as low as 1:2,900 to 1:400,000 [11]. However, Olyslager and Conway [12] estimated that the number of people who identify as transgender is likely to be at least 1:100.

To the best of our knowledge, no prior nationally representative survey has published results pertaining to the overall health and well-being of transgender adolescents. In fact, transgender people are "virtually absent" [13] (p. 4) from large-scale, population-based surveys, and to date, most studies among this group are small-scale (e.g., case reports [8,13]). A population-based study from the United States surveyed young people about whether they were transgender, and found that 17 adolescents reported being transgender (from a total of 1,253) [14]. This same study combined transgender students with lesbian, gay, and bisexual (LGB) young people and found that this broad group was at significantly increased risk of depression, self-harm, and suicidal ideation. Studies using convenience samples have also suggested increased mental health concerns for transgender young people. For instance, Grossman and D'Augelli [15] reported that 26% (n = 14) of transgender participants in their study had attempted suicide.

Evidence is emerging that transgender young people may also be at particular risk of violence [16], but little else has been published on their health and well-being needs [16]. Transgender adolescents may be considerably different from LGB adolescents, but to date, researchers have often combined LGB youth with transgender youth. Presumably this is to create the largest group possible for quantitative analyses. However, combining transgender young people with LGB youth does not allow for a more detailed study of the needs of the individual groups under the LGB-transgender spectrum.

The overall aims of this study were to report the proportion of self-reported transgender high school students and to create an overview of their health and well-being.

Methods

We used data collected in Youth'12, a national, cross-sectional, population-based youth health and well-being survey of New Zealand secondary school students. Detailed descriptions of the survey methods of Youth'12 are available elsewhere [17,18]. In summary, 8,500 randomly selected secondary school students from 91 randomly selected high schools completed the survey, accounting for 3% of the total 2012 secondary school roll in New Zealand. Response rates for schools and students were 73% and 68%, respectively. The anonymous, comprehensive, 608-question multimedia survey was administered using Internet tablets [19]. Written consent was required from each participating school and each student provided consent before being able to access the Youth'12 survey. Ethics approval was gained from the University of Auckland Human Participants Ethics Committee.

Whether a student was transgender was measured by the question, "Do you think you are transgender? This is a girl who feels like she should have been a boy, or a boy who feels like he should have been a girl (e.g., Trans, Queen, Fa'faffine, Whakawahine, Tangata ira Tane, Genderqueer)?" Students were categorized into one of four gender groups: those who reported being non-transgender, those who reported being transgender, those who reported being not sure of their gender, and those who did not understand the question. Data were analyzed for each of these four groups, because it was hypothesized that there were meaningful differences in the health and well-being of each group.

Measures

Demographic information. Before being asked the question about whether a student was transgender, participants were asked (at the start of the survey), "What sex are you?" (with response options of "male" or "female") and were asked their age in years. Students indicated the ethnic groups that they belonged to, using the New Zealand Census standard 2001/2006 ethnicity questions [20]. The number of participants by age for certain gender groups was small; therefore, age was categorized as $\leq$15 years and $\geq$16 years. Participants who chose more than one ethnicity were assigned a single ethnic group based on the Statistics New Zealand ethnicity prioritization method [21]. For data analyses, ethnicity was grouped as New Zealand European, Māori, Pacific, Asian, and other. Socioeconomic deprivation was measured using the New Zealand Deprivation Index (NZDep2006 [22]) for the census area unit in which the student lived. The New Zealand Deprivation Index combines eight dimensions of deprivation derived from the New Zealand Census [22]. For data analyses, students were grouped into one of three deprivation bands indicating lower deprivation (New Zealand Census deprivation deciles 1–3), medium deprivation (deciles 4–7), and higher deprivation (deciles 8–10). Sexual attraction was measured with the question "Which are you sexually attracted to?" Participants selected whether they were attracted to the opposite sex, the same sex, or both sexes; whether they were not sure, or whether they were attracted to neither sex. Because of the small number of participants according to the gender groups and the five potential groups for the question, those who were attracted to the same or both sexes, were not sure of their sexual attractions, or were attracted to neither sex were combined into a single category (not exclusively opposite-sex attracted). Those who were opposite-sex attracted were classified as exclusively opposite-sex attracted, and those who did not understand the question were classified as "don't understand the question."

Awareness of being transgender and disclosure about being transgender. Possible responses to "How old were you when you wondered about being transgender?" were aggregated to $<$ than 8 years of age, 8–11 years of age, and $\geq$12 years of age. Twelve years of age or older was selected for the older age group because all the participants in the study were at least this age at the time they completed the survey. Transgender participants were also

asked, "Have you told some people close to you about being transgender?" Those who gave an affirmative response were classified as have disclosed being transgender.

Protective factors. That at least one parent cared a lot for the student was established from the question, "How much do you feel the following people care about you?" for either their "mum (or someone who acts as your mum)" or their "dad (or someone who acts as your dad)." Whether the family "got along" was based on the question, "How do your family members get along?" Response options were "well" or "very well." Whether friends cared a lot was established from the question, "How much do you feel your friends care about you?" Whether school was okay (or the student liked school a bit or a lot) was established from the question, "How do you feel about school?" Whether the participant did activities to help others at school was based on an affirmative response to "Do you do activities to help others at school (e.g., peer support, tutoring, coaching, being a leader, helping others with work)?" Volunteering in the community was based on an affirmative response to "Do you give your time to help others in your community (e.g., help out on the Marae (indigenous Māori sacred gathering place) or church, belong to a volunteer organization such as Greenpeace)?"

Violence and personal safety. Fear that someone at school would hurt or bother a student was measured by the question, "In the past 12 months, how often have you been afraid that someone will hurt or bother you at school?" Students who responded once or more often were classified as being afraid. Bullied at school at least weekly was based on the question, "In the past 12 months, how often have you been bullied in school?" Whether the student felt safe in the neighborhood was established from the question, "Do you feel safe in your neighborhood?" Response options were "all of the time" and "sometimes." Whether the participant had been hit or physically harmed by another person was based on a "once or more often" response to the question, "During the past 12 months, how many times have you been hit or physically harmed by another person on purpose?" or a "once or more often" response to the question, "In the past 12 months, have adults in your home hit or physically hurt you?" Having been in a serious physical fight was identified by a "once or more often" response to the question, "In the past 12 months, how many times were you in a serious physical fight?"

Health and well-being indicators. Significant depressive symptoms were identified by scores ≥28 on the Reynolds Adolescent Depression Scale, Short Form. This score was based on the analysis of an earlier health and well-being survey (Youth'01), which showed that a level of 28 best matched the cutoff of the full Reynolds Adolescent Depression Scale and gave closer agreement than the lower recommended Reynolds Adolescent Depression Scale, Short Form cutoff level of 26 in the percentage classified as having significant depressive symptoms [23]. Self-harm in the past 12 months was defined as an affirmative response to the question, "During the past 12 months, have you deliberately hurt yourself or done anything you knew might have harmed you (but not kill you)?" Attempted suicide in the past 12 months was identified by an affirmative response to the question, "During the last 12 months, have you tried to kill yourself (attempted suicide)?" Whether the participant had drunk alcohol at least weekly in the past month was based on the question, "During the past 4 weeks, about how often did you drink alcohol?" Whether the student had ever had sex was established based on an affirmative response to the question, "Have you ever had sex? (By this, we mean sexual intercourse. Do not include sexual abuse)" or an age response to "About how old were you when you first had an experience of sex? (By this, we mean sexual intercourse or going all the way. Do not include sexual abuse)" Been unable to access health care was determined based on an affirmative response to the question, "In the past 12 months, has there been any time when you wanted or needed to see a doctor or nurse (or other health care worker) about your health, but you weren't able to?"

Analysis

In all analyses, the data were weighted by the inverse probability of selection and the variance of estimates was adjusted to allow for correlated data from the same schools. Total numbers and adjusted percentages were calculated for the gender groups according to various outcomes and indicators. Logistic regression models, including the possible confounders of age, sex, ethnicity, and level of neighborhood socioeconomic deprivation (NZDep2006), were used to investigate the associations between gender groups (the reference category was non-transgender students) and identified protective factors, violence or personal safety outcomes, and health and well-being indicators. All analyses were carried out using SAS software version 9.3 (2010; SAS Institute, Cary, NC) using the survey procedures. Given the number of comparisons and size of the survey, $p < .01$ was taken to indicate statistical significance in all analyses.

Results

Over 8,000 students (n = 8,166) answered the question about whether they were transgender. Approximately 95% of students did not report being transgender (n = 7,731; 94.7%), 96 students reported being transgender (1.2%), 202 reported not being sure (2.5%), and 137 did not understand the question (1.7%). Students in the transgender and other gender groups were varied populations (Table 1).

Approximately 40% of transgender students were not exclusively opposite-sex attracted. By comparison, <7% of non-transgender students were not exclusively opposite-sex attracted (Table 1 and Figure 1).

Over half of the transgender students wondered about being transgender at age ≥12 years. Most of transgender students had not disclosed to someone close to them about being transgender. Of those who had disclosed being transgender, almost two thirds were ≤15 years of age when they did so (n = 21; 65.0%).

About three quarters of transgender students reported that school was okay and that they had at least one parent who cared a lot about them. Most students in each gender group indicated that their family got along. However, transgender, not sure, or did not understand the question students were significantly less likely to report experiencing three of the six protective factors (Table 2).

Students who were transgender, not sure, or did not understand the question were at increased risk of violence and had compromised personal safety. In particular, transgender students appeared especially vulnerable to mistreatment. For example, more than half were afraid someone at school would hurt or bother them, and nearly one in five transgender students

Table 1
Demographic characteristics of students by gender group

	Gender subgroup			
	Non-transgender, n (%)	Transgender, n (%)	Not Sure, n (%)	Don't understand question, n (%)
"What sex are you?"				
Male	3,468 (45.0)	44 (45.6)	82 (40.9)	75 (54.8)
Female	4,261 (55.0)	52 (54.4)	120 (59.1)	62 (45.2)
"How old are you?"				
≤15 years	4,977 (64.4)	58 (60.4)	133 (65.8)	99 (71.7)
≥16 years	2,745 (35.6)	38 (39.6)	68 (34.2)	38 (28.3)
"Which ethnic group do you belong to?"				
New Zealand European	3,811 (49.2)	32 (34.1)	67 (32.7)	37 (26.5)
Māori	1,517 (19.6)	19 (19.4)	41 (20.6)	33 (23.7)
Pacific	1,005 (13.1)	23 (24.6)	42 (20.8)	28 (20.9)
Asian	925 (12.0)	15 (16.0)	40 (19.9)	34 (25.2)
Other	464 (6.0)	6 (5.8)	12 (6.0)	5 (3.7)
NZDep2006				
Low deprivation	2,563 (33.6)	27 (29.1)	52 (26.8)	30 (22.8)
Medium deprivation	2,788 (36.5)	27 (28.1)	66 (33.0)	35 (27.4)
High deprivation	2,301 (29.9)	40 (42.8)	79 (40.2)	66 (49.8)
"Who are you sexually attracted to?"				
Exclusively opposite-sex attracted	7,070 (92.0)	52 (54.6)	122 (61.2)	70 (51.4)
Not exclusively opposite-sex attracted	517 (6.7)	39 (41.1)	64 (31.3)	16 (12.0)
Don't understand question	106 (1.4)	4 (4.3)	15 (7.5)	49 (36.6)
How old when wondered about being transgender				
<8 years		25 (27.3)		
8–11 years		16 (17.9)		
≥12 years		50 (54.8)		
Have you disclosed being transgender?				
Yes		32 (34.8)		
No		60 (65.2)		

reported experiencing bullying at school on a weekly (or more frequent) basis (Table 3).

Relative to their non-transgender peers, students in the other gender groups had increased health and well-being needs. Transgender students appeared to have the greatest needs. In particular, approximately 40% of these students had significant depressive symptoms, had harmed themselves, and had been unable to access health care when they needed it. One in five transgender students had attempted suicide in the previous 12 months (Table 4).

Discussion

Summary of main findings

To the best of our knowledge, no nationally representative survey has published results pertaining to the overall health and well-being of transgender adolescents (or adults). We investigated gender groups and associations with protective factors, violence or personal safety variables, and health and well-being indicators in a large national survey of secondary school students in New Zealand. We concur with Goldblum and colleagues that transgender young people are "diverse in both identities and experiences" [9] (p. 474). Most of the transgender students surveyed reported that they had at least one parent who cared for them, that school was okay, that they felt safe in their neighborhood, and that they were not suicidal and did not have significant depressive symptoms. However, transgender students and those who were not sure or did not understand the question were at increased risk of being bullied, having physical fights, depressive symptoms, and suicide attempts, and being unable to access health care compared with their non-transgender peers. This is in line with previous research showing that transgender young people are at greater risk of mistreatment [16], depression, self-harm, and suicide [14,15].

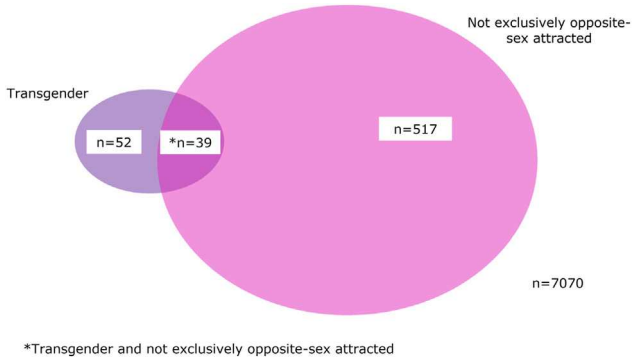

Figure 1. Relationship between sexual attraction and transgender/non-transgender students.

A small but important proportion of students reported being transgender (1.2%). This proportion is comparable to a study using a community sample of young people in North America [14], and it is similar to a recent estimate of the overall prevalence of transgender people [11]. By contrast, prior research has reported much lower rates than in our study [12], but those data were based on people accessing specialist clinics over a 40-year period [24].

With increasing age, the proportion of students who did not understand the question about whether they were transgender appeared to decrease, whereas the proportion that was not sure was similar by age group (compared with non-transgender students). Furthermore, although more than a quarter of transgender students were aware of being transgender at a young age, just over half of transgender students in our study reported that they had

Table 2
Associations between gender group and protective factors

	n (%)	Odds ratio (95% confidence interval)[a]	*p* Value[b]
At least one parent cares a lot for the student			<.0001
Non-transgender (n = 7,645)	7,153 (93.6)	1.0	
Transgender (n = 93)	71 (76.1)	.3 (.2–.4)	
Not sure (n = 192)	172 (89.4)	.6 (.4–1.0)	
Don't understand question (n = 128)	108 (84.2)	.4 (.2–.7)	
Family gets along			<.0001
Non-transgender (n = 7,729)	6,296 (81.5)	1.0	
Transgender (n = 96)	61 (63.9)	.4 (.2–.6)	
Not sure (n = 202)	146 (72.3)	.6 (.5–.8)	
Don't understand question (n = 137)	100 (72.4)	.6 (.4–.9)	
Friends care a lot			<.0001
Non-transgender (n = 7,672)	5,163 (67.3)	1.0	
Transgender (n = 94)	44 (47.1)	.4 (.3–.7)	
Not sure (n = 200)	106 (52.6)	.5 (.4–.7)	
Don't understand question (n = 131)	69 (52.3)	.6 (.4–.9)	
School is okay (or student likes school a bit or a lot)			<.0001
Non-transgender (n = 7,729)	6,984 (90.4)	1.0	
Transgender (n = 96)	71 (74.1)	.3 (.2–.4)	
Not sure (n = 202)	185 (91.6)	1.0 (.6–1.7)	
Don't understand question (n = 137)	121 (88.5)	.6 (.4–1.0)	
Does activities to help others at school			.87
Non-transgender (n = 7,725)	3,008 (38.9)	1.0	
Transgender (n = 96)	39 (40.8)	1.1 (.8–1.5)	
Not sure (n = 199)	82 (41.5)	.9 (.7–1.2)	
Don't understand question (n = 137)	51 (37.1)	1.1 (.8–1.5)	
Volunteers in the community			.087
Non-transgender (n = 7,584)	2,665 (35.1)	1.0	
Transgender (n = 93)	45 (48.1)	1.6 (1.0–2.4)	
Not sure (n = 198)	67 (33.4)	.8 (.6–1.1)	
Don't understand question (n = 124)	38 (31.1)	.8 (.6–1.2)	

[a] Reference category is non-transgender students, adjusted for age, sex, ethnicity, and level of deprivation.
[b] *p* value for the influence of gender group on the variable tested.

Table 3
Associations between gender group and violence or personal safety

	n (%)	Odds ratio (95% confidence interval)[a]	*p* Value[b]
Students afraid someone at school would hurt or bother them			.0002
Non-transgender (n = 7,728)	3,067 (39.8)	1.0	
Transgender (n = 96)	51 (53.5)	1.9 (1.3–2.9)	
Not sure (n = 201)	101 (50.6)	1.6 (1.2–2.2)	
Don't understand question (n = 135)	63 (47.3)	1.4 (.9–2.1)	
Bullied at school at least weekly			<.0001
Non-transgender (n = 7,708)	444 (5.8)	1.0	
Transgender (n = 96)	17 (17.6)	4.5 (2.4–8.2)	
Not sure (n = 200)	24 (12.0)	2.5 (1.6–3.9)	
Don't understand question (n = 132)	17 (12.8)	2.9 (1.8–4.8)	
Student feels safe in neighborhood			.0002
Non-transgender (n = 7,479)	6,834 (91.4)	1.0	
Transgender (n = 84)	68 (81.2)	.5 (.3–.8)	
Not sure (n = 191)	156 (81.3)	.5 (.3–.8)	
Don't understand question (n = 111)	92 (82.5)	.5 (.3–.9)	
Been hit or physically harmed by another person			<.0001
Non-transgender (n = 7,725)	2,516 (32.5)	1.0	
Transgender (n = 95)	47 (49.9)	2.1 (1.3–3.2)	
Not sure (n = 201)	86 (43.1)	1.7 (1.2–2.2)	
Don't understand question (n = 134)	49 (36.5)	1.1 (.8–1.7)	
Been in a serious physical fight			.0001
Non-transgender (n = 7,700)	1,021 (13.3)	1.0	
Transgender (n = 95)	24 (24.1)	1.9 (1.1–3.2)	
Not sure (n = 198)	40 (20.5)	1.6 (1.0–2.5)	
Don't understand question (n = 130)	32 (24.3)	2.0 (1.4–2.8)	

[a] Reference category is non-transgender students, adjusted for age, sex, ethnicity, and level of deprivation.
[b] *p* value for the influence of gender group on the variable tested.

first wondered about being transgender after the age of 12 years (which is similar to the proportion of same sex–attracted students aware of their sexual attractions in New Zealand [25]). Taken together, these factors indicate that adolescence is a time when a number of young people are making sense of their gender. Over 60% of transgender students had not disclosed being transgender, which is equivalent to the proportion of same/both sex–attracted students who had not come out in relation to their sexual attractions in New Zealand [25,26].

Strengths and limitations

This survey includes data from a large nationally representative sample of New Zealand secondary school students. The survey had been subjected to extensive pilot and field testing before Youth'12 was conducted. We are not aware of comparable analyses examining the health and well-being of transgender students.

There are some limitations. First, we are unsure about how the question of whether a student was transgender was interpreted by students overall. Although we undertook considerable consultation within both the adult and youth transgender communities, there was considerable debate about how best to ask this question. There may have been some ambiguity for individual students in interpreting the question, particularly students in the younger age groups, because 1.7% of participants did not understand the question. We acknowledge that the term "transgender" might not have reflected the complexities of identity or experience of some students. However after cognitive testing with transgender youth, we are comfortable that the question was developmentally and culturally appropriate, and as such captured an appropriate group within the transgender umbrella. We suggest that similar to best practices developed for asking about sexual orientation in youth population-based surveys [27], questions pertaining to transgender youth require similar processes, to ensure that quality standardized information (while maintaining local cultural uniqueness) is collected for this group. Because students could select their sex only as either male or female for the item "What sex are you?" and the question about whether a student was transgender was a separate item, it is hard to know how transgender students interpreted the question on sex (i.e., did they respond based on their natal sex or based on their gender identity at the time of the survey?). Therefore, we do not know which transgender students were girls assigned male at birth or boys assigned female at birth. However, many transgender young people identify with a gender that is outside the conventional

Table 4
Associations between gender group and health or well-being indicators

	n (%)	Odds ratio (95% confidence interval)[a]	*p* Value[b]
Significant depressive symptoms			<.0001
Non-transgender (n = 7,580)	897 (11.8)	1.0	
Transgender (n = 83)	34 (41.3)	5.7 (3.6–9.2)	
Not sure (n = 190)	58 (30.9)	3.4 (2.5–4.6)	
Don't understand question (n = 119)	29 (24.6)	2.8 (1.8–4.4)	
Self-harmed in past 12 months			<.0001
Non-transgender (n = 7,710)	1,809 (23.4)	1.0	
Transgender (n = 95)	44 (45.5)	2.7 (1.7–4.3)	
Not sure (n = 201)	80 (40.4)	2.2 (1.6–2.9)	
Don't understand question (n = 132)	31 (23.7)	1.0 (.7–1.6)	
Attempted suicide in past 12 months			<.0001
Non-transgender (n = 7,678)	315 (4.1)	1.0	
Transgender (n = 95)	19 (19.8)	5.0 (2.9–8.8)	
Not sure (n = 198)	16 (8.2)	1.8 (1.0–3.1)	
Don't understand question (n = 130)	17 (13.3)	3.7 (2.1–6.6)	
Drank alcohol at least weekly in past month			.0016
Non-transgender (n = 7,681)	639 (8.3)	1.0	
Transgender (n = 95)	17 (17.6)	2.9 (1.7–4.9)	
Not sure (n = 201)	16 (8.0)	1.1 (.7–1.9)	
Don't understand question (n = 134)	8 (6.0)	1.0 (.5–2.2)	
Ever had sex			.0078
Non-transgender (n = 7,714)	1,834 (23.8)	1.0	
Transgender (n = 95)	38 (39.7)	2.3 (1.4–3.8)	
Not sure (n = 201)	49 (24.8)	1.2 (.9–1.7)	
Don't understand question (n = 137)	30 (21.8)	1.3 (.8–2.1)	
Been unable to access health care			<.0001
Non-transgender (n = 7,718)	1,375 (17.8)	1.0	
Transgender (n = 96)	38 (39.2)	2.7 (1.8–4.1)	
Not sure (n = 201)	54 (26.5)	1.5 (1.1–2.0)	
Don't understand question (n = 133)	34 (25.9)	1.6 (1.1–2.4)	

[a] Reference category is non-transgender students, adjusted for age, sex, ethnicity, and level of deprivation.
[b] *p* value for the influence of gender group on the variable tested.

binary of male/female [28]. Because of this, we used preferential terms such as "genderqueer" [28] and other terms culturally relevant in New Zealand (e.g., "Whakawahine," "Tangata ira Tane," "Fa'faffine," and "Queen") to increase "… adolescents' consciousness that there are options beyond a binary gender system" [28] (p. 97). For similar reasons, the item on sexual attractions is limited (e.g., a transgender student whose natal sex was female and gender identity was male may have been attracted to males and stated their sexual attractions were to the same sex). However, our results that transgender students are diverse in relation to their sexual attractions (approximately 40% were not exclusively opposite-sex attracted) are supported by prior research. For example, in a convenience sample of 515 transgender participants, Clements-Nolle and colleagues [29] found that 24% of participants identified as bisexual and 14% identified as lesbian/gay. The item "ever had sex" was framed as "intercourse" or "going all the way," and as such was probably interpreted by students as negating other types of sex (i.e., oral or anal sex). Another limitation of this study is that although we surveyed students about whether they were transgender, we did not ask participants whether they were intersex.

This was a cross-sectional study, and causality cannot be demonstrated. All data were based on self-report. The survey was of secondary school students present at school on the day of the survey, and evidence suggests that adolescents who attend school are healthier than those who do not [30]. Finally, because the survey questionnaire contained many sensitive topics, students were able to choose not to answer a particular question. This means that there was a small percentage of missing data.

Approximately 4% of secondary school students reported that they were transgender or that they were unsure of their gender. These students experienced compromised mental health and personal safety, and they described more difficulty accessing health care. Health professionals, schools, and the wider community need to consider that some of their members are transgender, and they should provide appropriate services and create safe environments in which adolescents can openly express gender diversity [28]. Available information suggests that school locker rooms, bathrooms, sports teams, formal written records, and dress codes require special attention when ensuring a positive milieu is created for transgender students [31,32]. Furthermore, a positive youth development approach to transgender adolescents that focuses on building the young person's confidence, competence, and social connectedness will help to promote the resilience and healthy development of gender-diverse young people [28].

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